**Texas STARBASE**
**TEKS Associated with STARBASE activities for FY 2014 - 2015**

*The Texas STARBASE Curriculum is correlated to and supports the following Texas Essential Knowledge and Skills:*

## §112.16. Science , Grade 5

### (b) Knowledge and Skills

**(1) Scientific investigation and reasoning.** The student, for at least 50% of instructional time, conducts investigations in the classroom and outdoors following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:
(A) demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations.

**(2) Scientific investigation and reasoning.** The student uses scientific methods during field and laboratory investigations. The student is expected to:
(A) describe, plan and implement simple experimental investigations testing one variable;
(B) ask well-defined questions, formulate testable hypotheses, select and use appropriate equipment and technology;
(C) collect information by detailed observations and accurate measuring;
(D) analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;
(E) demonstrate that repeated investigations may increase the reliability of results;
(F) communicate valid conclusions in both written and verbal forms.
(G) construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.

**(3) Scientific investigation and reasoning.** The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:
(A) in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;
(D) connect grade level appropriate science concepts with the history of science, science careers, and contributions of scientists.

**(4) Scientific investigation and reasoning.** The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:
(A) collect and analyze information using tools including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, timing devices including clocks and stopwatches, and materials to support objects of habits or to support organisms such as terrariums and aquariums; and
(B) use safety equipment including safety goggles and gloves.

**PHYSICAL SCIENCE**

**(5) Matter and energy.** The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:
(A) classify matter based on physical properties including: mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), and solubility in water and; and the ability to conduct or insulate thermal or electric energy;

**(6) Force, motion, and energy.** The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:
(B) demonstrate the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound.
(D) design an experiment that tests the effect of force on an object.

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## §111.7. Mathematics, Grade 5 Adopted 2012

### (b) Knowledge and skills.

**(1) Mathematical process standards**. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

(A) apply mathematics to problems arising in everyday life, society, and the workplace;
(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
(E) create and use representations to organize, record, and communicate mathematical ideas;
(F) analyze mathematical relationships to connect and communicate mathematical ideas; and
(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

**(2) Number and operations.** The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to:

(C) round decimals to tenths or hundredths. - would add, we do this when we find the mean and also during atmospheric properties for the second investigation - "does air have weight"

**(3) Number and operations**. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to:

(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division
(K) add and subtract positive rational numbers fluently

**(4) Algebraic reasoning**. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:

(G) use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube ($V = l \times w \times h$, $V = s \times s \times s$, and $V = Bh$);
(H) represent and solve problems related to perimeter and/or area and related to volume

**(5) Geometry and measurement**. The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties

**(7) Geometry and measurement**. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to solve problems by calculating conversions within a measurement system, customary or metric.

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**(8) Geometry and measurement.** The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to:
(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*-coordinate, the first number in an ordered pair, indicates movement parallel to the *x*-axis starting at the origin; and the *y*-coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin;
(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane

**(9) Data analysis**. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected:
(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;

## §126.7. Technology Applications, Grades 3-5, Beginning with School Year 2012-2013

### (b) Knowledge and skills.

**(1) Creativity and Innovation.** The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to:
(A) create original products using a variety of resources
(C) use virtual environments to explore systems and issues

**(2) Communication and collaboration.** The student collaborates and communicates both locally and globally using digital tools and resources to reinforce and promote learning. The student is expected to:
(A) draft, edit, and publish products in different media individually and collaboratively
(F) perform basic software application functions, including opening applications and creating, modifying, printing and saving files

**(3) Research and information fluency.** The student acquires and evaluates digital content. The student is expected to:
(B) collect and organize information from a variety of formats, including text, audio, video and graphics
(D) acquire information appropriate to specific task

**(4) Critical thinking, problem solving, and decision making The student researches and evaluates projets using digital tools and resources**. The student is expected to
(B) collect, analyze, and represent data to solve problems using tools such as word processing, databases, spreadsheets, graphic organizers, charts, multimedia, simulations, models and programming languages.

**(6) Technology operations and concepts.** The student demonstrates knowledge and appropriate use of technology systems, concepts, and operations. The student is expected to:
(B) manipulate files using appropriate naming conventions; file management, including folder structures and tagging; and file conversions
(E) use proper touch keyboarding techniques and ergonomic strategies such as correct hand and body positions and smooth and rhythmic keystrokes

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## §113.16. Social Studies Grade 5

**(6) Geography.** The student uses geographic tools to collect, analyze and interpret data. The student is expected to:
(A) apply geographic tools, including grid systems, legends, symbols, scales and compass roses to construct and interpret maps

**(23) Science, technology, and society**. The student understands the impact of science and technology on society in the United States. The student is expected to:
(D) predict how future scientific discoveries and technological innovations could affect society in the United States.

**(26) Social studies skills**. The student uses problem-solving and decision-making skills, working independently and with others, in a variety of settings. The student is expected to:
(A) use a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution; and
(B) use a decision-making process to identify a situation that requires a decision, gather information, identify options, predict consequences, and take action to implement a decision.